

WHAT WE CLAIM IS:

1. A vehicle classification system comprising:
a classification loop array installed on a surface of a travelling path of a vehicle,
wherein the classification loop array generates profile information characterizing the
vehicle when the vehicle travels over the classification loop array; and
a microprocessor for receiving the profile information, wherein the
microprocessor uses the profile information to assign a predefined classification to the
vehicle.
2. The system of claim 1, wherein the profile information represents changes of
inductance which can be interpreted to identify one or more of an axle count of the vehicle, an
axle spacing of the vehicle, a speed of the vehicle, and a chassis height of the vehicle.
3. The system of claim 1, further comprising a vehicle library accessible to the
microprocessor, wherein the vehicle library comprises the predefined classification.
4. The system of claim 1, wherein the predefined classification is associated with a
fare.
5. The system of claim 4, further comprising a payment point in communication
with the microprocessor, wherein the payment point is adapted to notify an operator of the
vehicle of the fare and to receive the fare from the operator.
6. The system of claim 4, further comprising a notification device, wherein the

notification device is adapted to notify the operator of the fare.

7. The system of claim 4, further comprising means for receiving the fare from the operator.

8. The system of claim 4, further comprising a predefined classification listing in sequence of vehicles in queue, wherein the microprocessor dispenses the vehicle's queue in sequence to the operator.

9. A toll collection system comprising:

a classification loop array installed on a surface of a toll lane for sensing a vehicle moving through the toll lane, wherein the classification loop array is adapted to indicate changes in electromagnetic field which can be processed to produce initial signature information and wheel assembly information characterizing the vehicle;

a microprocessor for receiving the initial signature information and the wheel assembly information from the classification loop array, wherein the microprocessor uses the initial signature information and the wheel assembly information to assign a predefined classification to the vehicle;

an intelligent queue loop in communication with the microprocessor, wherein the intelligent queue loop is adapted to indicate changes in electromagnetic field which can be processed to produce subsequent signature information and wheel assembly information characterizing the vehicle, wherein the subsequent signature information is used to reconfirm the initial signature information to ensure that the vehicle is in a proper queue sequence;

means for associating a fare with the vehicle; and

means for receiving the fare.

10. The system of claim 9, wherein each of the initial signature information and the subsequent signature information represents changes of inductance which can be interpreted to identify one or more of an axle count of the vehicle, an axle spacing of the vehicle, a speed of the vehicle, and a chassis height of the vehicle.

11. The system of claim 9, wherein the means for receiving is located at a payment point along the toll lane.

12. The system of claim 11, wherein the classification loop array is located at a first distance from the payment point and the intelligent queue loop is located at a second distance from the payment point.

13. The system of claim 9, further comprising means for queuing more than one vehicles in sequence.

14. A toll collection system comprising:

means for generating initial signature information and wheel assembly information characterizing a vehicle that is moving in a toll lane, wherein each of the initial signature information and the wheel assembly information represents changes of inductance which can be interpreted to identify one or more of an axle count of the vehicle, an axle spacing of the vehicle, a speed of the vehicle, and a chassis height of the vehicle;

means for assigning a predefined classification to the vehicle based at least in part on the initial signature information and the wheel assembly information;

means for queuing more than one vehicles in sequence;

means for determining a fare appropriate for the vehicle; and

means for receiving the fare.

15. The system of claim 14, wherein the generating means comprises at least one wheel assembly loop and at least one signature loop, wherein the wheel assembly loop produces the wheel assembly information and the signature loop produces the initial signature information.

16. The system of claim 14, wherein the generating means comprises a left wheel assembly loop and a right wheel assembly loop, wherein the left wheel assembly loop and the right wheel assembly loop are aligned to correspond with a left side and a right side of the vehicle, respectively.

17. The system of claim 14, wherein the generating means comprises a front signature loop, a pair of wheel assembly loops, and a rear signature loop, wherein the pair of wheel assembly loops are located in between the front signature loop and the rear signature loop.

18. The system of claim 14, wherein the generating means comprises a front wheel assembly loop, a signature loop, and a rear wheel assembly loop, wherein the signature loop is located in between the front wheel assembly loop and the rear wheel assembly loop.

19. The system of claim 14, wherein the generating means comprises a bi-symmetrical offset wheel assembly loop characterized by a left member and a right member,

wherein the left member and the right member are aligned to correspond with a left side and a right side of the vehicle, respectively.

20. The system of claim 14, further comprising means for verifying a presence of the vehicle at a payment point along the toll lane.

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